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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,168	02/06/2004	Jose P. Pereira	NLMI.P206	7294

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EXAMINER	
PEIKARI, BEHZAD	
ART UNIT	**PAPER NUMBER**
2189	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/774,168	PEREIRA, JOSE P.	
	Examiner	Art Unit	
	B. James Peikari	2189	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *1/16/07*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because the title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed, e.g., the use of a "search key". Appropriate correction is required.

2. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-4, 6-9, 11-13, 16-17, 19-20, and 22-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pereira (US Patent 6,324,087 B1), in view of Kaganoi et al. (US Patent 7,095,742 B2), hereinafter simply Kaganoi.

Pereira teaches as claimed including "Each block select circuit compares the search code with its class code and, in response thereto, selectively enables or disables the corresponding CAM block" (See abstract).

Regarding claims 1, 12, 24, and 29, Pereira teaches a content addressable memory (CAM) device for comparing a search key to data values stored therein, comprising:

a plurality of CAM blocks, each including an array of CAM cells to store a predetermined range of data values (Fig. 9, CAM Blocks 802(0-3); column 12, lines 9-44; Pereira shows the table 1 with CAM 802(0) contains 0 to k-1 range of address, CAM 802(1) contains k to 2k-1 range of address and etc.);

means for selectively enabling each CAM block in response to a comparison between the selected portion of the search key and the predetermined range of data values for the corresponding CAM block (column 1, lines 64-67; column 2, lines 1-17).

Pereira fails to teach means for extracting a selected portion of the search key in response to a select signal. Kaganoi teaches means for extracting a selected portion of the search key in response to a select signal (column 2, lines 16-27; column 4, lines 32-43; column 5, lines 48-63).

At the time of invention it would have been obvious to a person of ordinary skill in the art to combine the Pereira with Kaganoi. The motivation for doing so would have been an improvement of a packet destination address process by processing it rapidly with a simply configuration (column 1, lines 35-38).

Regarding claim 2, Kaganoi teaches a CAM device, wherein the means for extracting comprises a parsing circuit (column 2, lines 16-27; column 4, lines 32-43; column 5, lines 48-63).

Regarding claims 3 and 19, Pereira teaches a CAM device, wherein the data values comprise network addresses (column 4, lines 58-67; column 5, lines 1-10).

Regarding claims 4 and 20, Pereira teaches a CAM device, wherein each CAM block is assigned to store a unique range of data values (Fig. 9, CAM Blocks 802(0-3); column 12, lines 9-44; Pereira shows the table 1 with CAM 802(0) contains 0 to k-1 range of address, CAM 802(1) contains k to 2k-1 range of address and etc.).

Regarding claims 6 and 22, Pereira teaches a CAM device, wherein the selected portion of the search key comprises a number of most significant bits of the search key (column 10, lines 18-31; Pereira teaches selecting a portion of the search key A[13:12] from 14 bit address A[13:0] to selects one of the CAM blocks).

Regarding claims 7 and 23, Pereira teaches a CAM device, wherein each data value has an associated priority value (column 3, lines 33-57).

Regarding claims 8-9, 13, 16, 25-27 and 30, Pereira teaches a CAM, wherein the means for selecting enabling comprises a plurality of block select circuits (Fig 7, Select 706(1-n)), each configured to enable a corresponding CAM block (column 1, lines 64-67; column 2, lines 1-17) if the selected portion of the search key falls within the predetermined range of data values stored in the corresponding CAM block (column 12, lines 2-44).

Regarding claim 11, Pereira teaches a CAM device, wherein each block select circuit disables the corresponding CAM block (column 1, lines 64-67; column 2, lines 1-17) if the selected portion of the search key does not fall within the predetermined range of data values stored in the corresponding CAM block (column 12, lines 2-44).

Regarding claims 17 and 28, Pereira teaches a CAM device, wherein the function generator performs a logical function on the selected portion of the search key (column 16, lines 24-39).

5. Claims 5, 14-15, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pereira (US Patent 6,324,087 B1), in view of Kaganoi et al. (US

Patent 7,095,742 B2), hereinafter simply Kaganoi, and further in view of Stark (US Patent 6,633,953 B2).

Regarding claims 5, 14-15, and 21, Pereira and Kaganoi teaches the limitations of these claims as set forth for claims 1, 12 and 13, above. However, Pereira and Kaganoi do not teach CAM blocks that are assigned to store overlapping ranges of data values. Stark teaches one or more CAM blocks that are assigned to store overlapping ranges of data values (column 2, lines 13-17; column 3, lines 15-19).

At the time of invention it would have been obvious to a person of ordinary skill in the art to combine the Pereira and Kaganoi with Stark. The motivation for doing so would have been low power consumption and a high search performance (column 3, lines 11-14).

Regarding claim 14, Pereira combined with Stark teach a CAM device, wherein the compare circuit asserts the block select signal if the selected portion of the search key is greater than the lower range value and less than the upper range value for the corresponding CAM block (See Stark, column 3, lines 15-19; column 4, lines 8-23; column 5, lines 53-58).

Regarding claim 15, Pereira combined with Star teach a CAM device, wherein the compare circuit de-asserts the block select signal if the selected portion of the search key

is less than the lower range value or greater than the upper range value for the corresponding CAM block (See Stark, column 5, lines 26-44).

6. Claims 10 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pereira (US Patent 6,324,087 B1), in view of Kaganoi et al. (US Patent 7,095,742 B2), hereinafter simply Kaganoi, and further in view of King (US Patent 7,003,625 B2).

Regarding claims 10 and 18, Pereira and Kaganoi teaches the limitations of these claims as set forth for claims 1, 8, 9, 12, 13, 16, and 17, above. However, Pereira and Kaganoi do not teach the function generator that performing a hash function on the selected portion of the search key. King teaches the function generator that performing a hash function on the selected portion of the search key (column 2, lines 45-58).

At the time of invention it would have been obvious to a person of ordinary skill in the art to combine the Pereira and Kaganoi with King. The motivation for doing so would have been an even distribution of entities across the plurality of columns in the CAM using the hash function (column 2, lines 45-58; column 9, lines 12-16).

Response to Arguments

7. Applicant's arguments with respect to claims 1-30 have been considered but are not deemed to place the application in condition for allowance for at least the following reasons. All of applicant's arguments hinge on the assertion that Kaganoi, and all

combinations of references that rely upon Kaganoi, do not teach the use of a "select signal" to extract a search key from a group of data. However, applicant's comments are not commensurate in scope with the claimed invention. There is no limitation in the claims, either negative or otherwise, to define the scope of a "select signal". In Kaganoi, the arrival of the packet itself is the trigger which signals the search key extracting circuit 12 to select a search key from the data contained in the packet. As the claims are presently written, this teaching of Kaganoi is well within the scope of a "select signal". In order to overcome this rejection, applicant must not only define the scope of the "select signal" in a manner that would exclude the teaching of Kaganoi, but must do so in a manner that is unobvious. However, it may prove difficult to show that it was unobvious to use a select signal to cause something to be selected.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Peikari whose telephone number is (571) 272-4185. The examiner is generally available between 7:00 am and 7:30 pm, EST, Monday through Wednesday, and between 5:30 am and 4:00 pm on Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Reginald Bragdon, can be reached at (571) 272-4204. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center at 866-217-9197 (toll-free).

B. James Peikari
Primary Examiner
Art Unit 2189
3/30/07